AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior listings and versions thereof.

1-20 (Cancelled).

21. (New) A method for determining the presence or absence of a phosphatidylinosital-3,4-diphosphate (PI-3,4-P2) in a test sample, which comprises the steps of:

(a) contacting a test sample with a monoclonal antibody labeled with a marker or a variable region thereof labeled with a marker, which specifically binds to an antigenic determinant comprising an inositol group and a glycerol backbone on a PI-3,4-P2, and which does not bind to or binds at a level of 1% or less to a phosphatidylinositol-4,5-diphosphate (PI-4,5-P2); and

(b) detecting the marker labeled on the antibody or a variable region thereof which has bound to the PI-3,4-P2 in the test sample, so that the presence or absence of the PI-3,4-P2 in the test sample is determined.

22. (New) The method of claim 21, wherein the test sample is a liquid sample.

23. (New) The method of claim 21, wherein the test sample is a solid sample.

24. (New) The method of claim 23, wherein the solid sample is a tissue.

25. (New) The method of claim 21, wherein the monoclonal antibody is an immunoglobulin comprising (i) a heavy chain which comprises complementarity determining regions: CDR1 comprising the amino acid sequence of SEQ ID NO: 5, CDR2 comprising the amino acid sequence of SEQ ID NO: 6 and CDR3 comprising the amino acid sequence of SEQ ID NO: 7, and (ii) a light chain which comprises complementarity determining regions: CDR1 comprising the amino acid sequence of SEQ ID NO: 8, CDR2

comprising the amino acid sequence of SEQ ID NO: 9 and CDR3 comprising the amino acid sequence of SEQ ID NO: 10.

26. (New) The method of claim 21, wherein the monoclonal antibody is produced by the hybridoma cell line identified by the International deposit accession number: FERM BP-6849.

27. (New) A method for quantifying a phosphatidylinositol-3,4-diphosphate (PI-3,4-P2) in a test sample, comprising the steps of:

(a) contacting a test sample, in a container onto which a PI-3,4-P2 has been immobilized, with a monoclonal antibody labeled with a marker or a variable region thereof labeled with a marker, which specifically binds to an antigenic determinant comprising an inositol group and a glycerol backbone on a PI-3,4-P2, and which does not bind to or binds at a level of 1% or less to a phosphatidylinositol-4,5-diphosphate (PI-4,5-P2), so that the PI-3,4-P2 immobilized on the container and the PI-3,4-P2 in the test sample competitively bind to the monoclonal antibody or a variable region thereof;

(b) measuring the amount of the marker labeled on the antibody or variable region thereof which has bound to the PI-3,4-P2 immobilized on the container; and

(c) comparing the amount of the marker measured in step (b) with that measured when step (a) is carried out with a standard solution that does not contain the PI-3,4-P2 instead of the test sample, wherein the lesser amount of the marker measured in step (b) reflects the quantity of the PI-3,4-P2 contained in the test sample.

28. (New) The method of claim 27, wherein the monoclonal antibody is an immunoglobulin comprising (i) a heavy chain which comprises complementarity determining regions: CDR1 comprising the amino acid sequence of SEQ ID NO: 5, CDR2 comprising the amino acid sequence of SEQ ID NO: 6 and CDR3 comprising the amino acid sequence of SEQ ID NO: 7, and (ii) a light chain which comprises complementarity determining regions: CDR1 comprising the amino acid sequence of SEQ ID NO: 8, CDR2

comprising the amino acid sequence of SEQ ID NO: 9 and CDR3 comprising the amino acid sequence of SEQ ID NO: 10.

29. (New) The method of claim 27, wherein the monoclonal antibody is produced by the hybridoma cell line identified by International deposit accession number: FERM BP-6849.

30. (New) A method for quantifying a phosphatidylinositol-3,4-diphosphate (PI-3,4-P2) in a test sample, comprising the steps of:

(a) contacting a test sample, in the presence of a PI-3,4-P2 labeled with a marker, with a monoclonal antibody or a variable region thereof that has been immobilized on a container, wherein said monoclonal antibody or variable region thereof specifically binds to an antigenic determinant comprising an inositol group and a glycerol backbone on a PI-3,4-P2, and which does not bind to or binds at a level of 1% or less to a phosphatidylinositol-4,5-diphosphate (PI-4,5-P2), so that the labeled PI-3,4-P2 and the PI-3,4-P2 in the test sample competitively bind to the monoclonal antibody or a variable region thereof immobilized on the container;

(b) measuring the amount of the marker labeled on the PI-3,4-P2 which has bound to the monoclonal antibody or a variable region thereof immobilized on the container; and

(c) comparing the amount of the marker measured in step (b) with that measured when step (a) is carried out with a standard solution that does not contain the labeled PI-3,4-P2 instead of the test sample, wherein the lesser amount of the marker measured in step (b) reflects the quantity of the PI-3,4-P2 contained in the test sample.

31. (New) The method of claim 30, wherein the monoclonal antibody is an immunoglobulin comprising (i) a heavy chain which comprises complementarity determining regions: CDR1 comprising the amino acid sequence of SEQ ID NO: 5, CDR2 comprising the amino acid sequence of SEQ ID NO: 6 and CDR3 comprising the amino acid sequence of SEQ ID NO: 7, and (ii) a light chain which comprises complementarity

determining regions: CDR1 comprising the amino acid sequence of SEQ ID NO: 8, CDR2 comprising the amino acid sequence of SEQ ID NO: 9 and CDR3 comprising the amino acid sequence of SEQ ID NO: 10.

32. (New) The method of claim 30, wherein the monoclonal antibody is produced by the hybridoma cell line identified by International deposit accession number: FERM BP-6849.